New Combinations and New Names in Some Brazilian Microlicieae (Melastomataceae), with Notes on the Delimitation of Lavoisiera, Microlicia, and Trembleya
Author(s): Frank Almeda and Angela B. Martins
Source: *Novon*, Vol. 11, No. 1 (Spring, 2001), pp. 1-7
Published by: Missouri Botanical Garden Press
Stable URL: http://www.jstor.org/stable/3393198
Accessed: 12/09/2014 15:01

Volume 11
Number 1
2001

NOVON

New Combinations and New Names in Some Brazilian Microlicieae (Melastomataceae), with Notes on the Delimitation of *Lavoisiera*, *Microlicia*, and *Trembleya*

Frank Almeda
Department of Botany, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118-4599, U.S.A. falmeda@calacademy.org

Angela B. Martins
Departamento de Botânica, IB, Universidade Estadual de Campinas, Caixa Postal 6109, 13083-970 Campinas, São Paulo, Brazil. amartins@unicamp.br

ABSTRACT. Consideration of generic limits in the largely Brazilian tribe Microlicieae has resulted in an emended circumscription of the genus *Lavoisiera* to include those species with a capsule that dehisces longitudinally from the base to the apex, and an ovary that is always partly inferior with a persistent columella and laterally flattened lamelliform placental intrusions. An ongoing re-evaluation of *Lavoisiera* necessitates the transfer of seven species to *Microlicia* and one species to *Trembleya*. Six new combinations are proposed (*Microlicia cerifera, M. mucugensis, M. noblickii, M. ordinata, M. vernicosa,* and *Trembleya elegans*), and two new names are provided (*Microlicia giuliettiana* and *M. longipedicellata*) for epithets already pre-empted in the genus to which they are being transferred. Generic limits in *Microlicia* and *Trembleya* are also discussed, together with distributional notes and diagnostic characters for the species here transferred to these genera.

Key words: Brazil, *Lavoisiera,* Melastomataceae, *Microlicia,* Microlicieae, *Trembleya.*

The Microlicieae, with over 250 species, is the largest tribe of capsular-fruited Melastomataceae with a distribution centered in Brazil. Previous classifications of the family have attributed between 11 and 15 genera to this tribe (Cogniaux, 1891; Renner, 1993), which has traditionally been defined by its terete capsules, unadorned ovary apex, prolonged anther connectives, rostrate anther thecae, and oblong or reniform seeds with a predominantly foveolate testa.

We are currently preparing a monograph of *Lavoisiera* DC., a genus of the Microlicieae with some 76 validly published species that is essentially restricted to campo rupestre habitats in central Brazil. Campo rupestre is a species-rich formation of interdigitating vegetation types dictated by slope, aspect, and drainage that is dominated by quartzitic outcrops with sandy or gravelly soils that are nutrient-poor (Giulietti et al., 1987; Giulietti & Pirani, 1997; Stannard, 1995).

The imprecise circumscription of genera in the Microlicieae has long been recognized (Baillon, 1877; Baumgratz et al., 1996; Hooker, 1867), yet no studies have attempted to evaluate intergeneric relationships within the tribe. To better understand the relationships and systematic position of *Lavoisiera,* we have conducted a comprehensive character analysis of all genera attributed to the Microlicieae in the past. Although our work is still in progress, our phylogenetic analyses using morphological characters show that *Lavoisiera* is consistently part of a clade that includes *Chaetostoma* DC., *Microlicia* D. Don, *Rhynchanthera* DC., *Sten-*

odon Naudin, and *Trembleya* DC. The remaining genera that have traditionally been included in the Microlicieae (*Bucquetia* DC., *Cambessedesia* DC., *Castratella* Naudin, *Eriocnema* Naudin, and *Lithobium* Bongard) by Cogniaux (1891) and Renner (1993) are more distantly related to *Lavoisiera*. Assignment of these discordant genera to other capsular-fruited tribes such as the Melastomeae and Sonerileae (including Bertolonieae) may be necessary when seed characters are better understood. Of the five other genera with which *Lavoisiera* forms a distinctive clade, it appears to be most closely related to *Microlicia* and *Trembleya*. Within this group of three genera, *Lavoisiera* is distinguished by a capsular fruit that always dehisces in acropetal fashion from the base to the apex. It has a 4- to 8-locular ovary that is always partly inferior (generally ¾ inferior but always at least ½ inferior), a persistent columella (the central axis around which the carpels are arranged), and placentae in each ovary locule that form laterally flattened lamelliform (platelike) intrusions. The flowers of *Lavoisiera* are typically 5- to 8-merous, rarely 9-merous. Many of the features that we use to characterize *Lavoisiera* were also enumerated by Naudin (1844). However, Naudin (1844) noted that the ovary of some species of *Lavoisiera* is 3-locular, and Cogniaux (1883) described and illustrated the ovary as 2-locular in a few species. We have been unable to verify the presence of a 2- or 3-locular ovary in any species of *Lavoisiera* and strongly suspect these were erroneous observations.

With the exception of *Lavoisiera*, which is unique in the family, all other capsular-fruited melastomes exhibit basipetal dehiscence from the apex to the base of the capsule. Previous students of the Melastomataceae have provided no insights on the biological significance of basal capsule dehiscence. We have given much thought to whether this extraordinary mode of fruit dehiscence has any adaptive significance. *Lavoisiera* differs from other capsular-fruited melastomes of campo rupestre habitats in having ovaries that are partly inferior. This partially inferior ovary creates a fruiting structure that is typically thick-walled for ½ to ¾ of its length. Thus, one possible advantage of basal capsule dehiscence is that it may promote rapid evacuation of mature seeds from the capsule. Apical dehiscence of a partly inferior capsular fruit with a similarly thick wall, on the other hand, creates a sturdier poorly dehiscent structure that would hold water longer and serve as a reservoir for the growth of destructive fungi and bacteria.

In *Microlicia*, capsule dehiscence is always longitudinal from the apex to the base, the ovary is always superior, the columella is deciduous, and the placentae in each ovary locule are dorso-ventrally compressed and sometimes subpeltate. The flowers are typically 5-merous, very occasionally 6-merous, and 8-merous in one species. The ovary in *Microlicia* is typically 3-locular, rarely 3- and 4-locular on the same individual, and 5-locular in a few species.

All of the largely Brazilian genera of Microlicieae were probably derived from ancestral stock that was morphologically similar in many respects to *Trembleya*. This genus has capsules that dehisce basipetally from the apex to the base, the ovary is always superior, the columella is deciduous, the placental intrusions in each ovary locule are subpeltate, the ovary is 3- to 5-locular, and the flowers are typically 5-merous, although two species are 4- or 5-merous. Other plesiomorphic characters of *Trembleya* are its pedicellate to subsessile flowers borne in dichasia or reduced modifications of dichasia and the bracts and bracteoles that subtend nodes and pedicels of the inflorescence, respectively. This is in contrast to the situation in *Microlicia* where the pedicellate to subsessile flowers are solitary and never subtended by modified leaves. *Lavoisiera* is more complex in this regard. It has two species with congested dichasia and associated bracts and bracteoles. A great majority of its 35 to 40 species, however, have sessile solitary flowers that are typically subtended by modified leaves (bracts).

The parallelisms in character states exhibited by these three genera are not unexpected in closely related taxa that have adapted to similar environments with high insolation, pronounced seasonal rainfall, and a landscape characterized by a mosaic of nutrient-poor soils and highly dissected topography. *Lavoisiera*, *Microlicia*, and *Trembleya* have some consistent diagnostic characters that facilitate generic separation. They also exhibit some modally distinctive, but not always mutually exclusive, differences in floral merosity and ovary locule number that are clearly homoplasious. This has made the placement of anomalous or seemingly intermediate species difficult or arbitrary at times. The recognition of *Lavoisiera* as a natural genus is clearly defensible. The relationship between *Microlicia* and *Trembleya*, however, is very close. At this point in our studies of the Microlicieae, we defer to the judgment of a recent monographer (Martins, 1997) and recognize *Trembleya* at the generic level pending the results of molecular data. Using the character combinations enumerated above, we have been able to confidently place all described species of *Lavoisiera* into one of the three genera discussed

here. This has been possible even in the few cases where mature fruiting material was lacking. Based on our revised generic circumscription, we herein propose the transfer of seven species of *Lavoisiera* to *Microlicia* and one to the genus *Trembleya.*

Microlicia cerifera (Gardner) A. B. Martins & Almeda, comb. nov. Basionym: *Lavoisiera cerifera* Gardner, Sertum Plantarum part 3, tab. 63, 1844. TYPE: Brazil. Minas Gerais: elevated mountain tracts NW of Diamantina, July 1840, *G. Gardner 4581* (holotype, BM; isotypes, B-destroyed, F-frag., photo negative F 16653, K, NY, US).

Distribution and phenology. Known only from the type, which was collected in flower in July.

In the protologue, Gardner emphasized that this species differed from other described species of *Lavoisiera* by its 3-celled ovary, but he expressed no doubts about his generic placement of the taxon. The 5-merous solitary flowers, lack of bracteoles, and 3-locular ovary of this species clearly dictate placement in *Microlicia.* None of the type specimens have capsules that are sufficiently mature to determine the exact nature of capsule dehiscence, but we feel confident that they will prove to be apically dehiscent when good fruiting material comes to light. In addition to the above characters, *M. cerifera* is distinguished by its 3-nerved leaves that are sessile and semiamplexicaul.

Microlicia giuliettiana A. B. Martins & Almeda, nom. nov. Basionym: *Lavoisiera luetzelburgii* Markgraf, Notizbl. Bot. Gart. Berlin-Dahlem 10: 47. 1927. TYPE: Brazil. Bahia: 1914, *P. Luetzelburg 286* (holotype, M).

Distribution and phenology. Endemic to the Chapada Diamantina in Bahia, Brazil, from the vicinity of Lençois and Mucugê west to Piatã and south to Pico das Almas and the vicinity of Rio de Contas where it is locally common in campo rupestre and grassy slopes at 700–1850 m. Flowering from January through August, with an apparent peak in March, and in November and December; fruiting in December, February, March, and July (the peak month) and probably intervening months.

A new name, *Microlicia giuliettiana,* is provided for this species because the basionym is already pre-empted by *M. luetzelburgii* Markgraf (Markgraf, 1927). Markgraf's placement of this species in *Lavoisiera* is puzzling because he described it as having solitary 5-merous flowers and a 3-locular ovary, characters traditionally associated with *Microlicia.* Our examination of material consistently shows that the capsules dehisce from the apex to the base, the ovary is superior, the columella is deciduous, and the placental intrusions are dorso-ventrally compressed. Thus, its placement in *Microlicia* is clearly warranted. Woodgyer (1995) also questioned the generic placement of *Lavoisiera luetzelburgii* and suggested that it might be more appropriately accommodated in *Microlicia.*

The unusual petal color pattern in this species is one of its most distinctive features. The petals are magenta pink when expanded with an abaxial red band or stripe on one side of each petal. The red band is typically all that is visible on floral buds and superficially gives the appearance that the petals are dark red. Other diagnostic features of this species are its obovate to broadly elliptic leaves that are apically rounded and mucronate with crenate to serrate margins beset with gland-tipped hairs.

We take pleasure in naming this species for our colleague, Ana Maria Giulietti, in recognition of her many contributions to botanical research, the training of many young Brazilian botanists, and her long-time efforts to promote an understanding of the rich campo rupestre flora in the states of Minas Gerais and Bahia, Brazil.

Representative specimens examined. BRAZIL. **Bahia:** Município de Lençois, estrada de Lençois BR 242, 5 km ao N de Lençois, 19 Dec. 1981, *Carvalho et al. 993* (CEPEC, US); região da Serra Sincorá, entre Ibyquara e Mucugê, 17 Feb. 1943, *Fróes 20163* (US); Município de Piatã, Serra do Atalho, próximo ao Garimpo da Cravada, 13°07′S, 41°54′W, 21 Aug. 1992, *Ganev 926* (CAS, HUEFS); 8 km SW of Mucugê on road from Cascavel near Fazenda Paraguacú, 41°25′W, 13°02′S, 6 Feb. 1974, *Harley 16078* (CEPEC, NY, US); lower NE slopes of the Pico das Almas, ca. 25 km WNW of the Vila do Rio de Contas, 41°57′W, 13°33′S, 17 Feb. 1977, *Harley et al. 19503* (CEPEC, NY, US); Serra do Lençois, lower slopes of Morro do Pai Inácio ca. 14.5 km NW of Lençois just N of the main Seabra–Itaberaba road, 41°28′W, 12°27′S, 21 May 1980, *Harley et al. 22243* (CEPEC, UEC, US); Município de Piatã, estrada para Inóbia ca. 31 km de Piatã, 15 Feb. 1987, *Harley et al. 24278* (CAS); Município Rio de Contas, Mato Grosso, 16 May 1983, *Hatschbach 46513* (CEPEC, MICH, US).

Microlicia longipedicellata Almeda & A. B. Martins, nom. nov. Basionym: *Lavoisiera glutinosa* Cogniaux, in Mart. Fl. Bras. 14(3): 145. 1883. TYPE: Brazil. Minas Gerais: in locis saxosis prope Tejuco [Diamantina], Dec. 1824, *L. Riedel 1224* (holotype, LE not seen, photo negative F 16660; isotypes, C, M, MO, NY, US, W).

Distribution and phenology. Known only from the type and two other collections made in 1937,

all of which come from the Diamantina plateau in Minas Gerais, Brazil. These collections were gathered in November and December. Collections from both months have flowers; one of the collections made in December has persisting old capsules.

In transferring *Lavoisiera glutinosa* Cogniaux to *Microlicia* we are providing a new name, *Microlicia longipedicellata*, because *Microlicia glutinosa* Naudin is already pre-empted (Naudin, 1845: 180). In the protologue of *Lavoisiera glutinosa*, Cogniaux stated that the capsule opens from the base. This and the purported 6-locular ovary were probably the characters that prompted him to assign it to *Lavoisiera*. Our observations indicate that the capsules actually dehisce from the apex to the base. This kind of capsule dehiscence together with the ebracteate flowers, dehiscent columella, dorso-ventrally compressed placentae, and superior ovary leave no doubt that *L. glutinosa* should be placed in the genus *Microlicia* as we circumscribe it. *Microlicia longipedicellata* also has an 8-merous flower and an ovary that is 5-locular, character states that are common in species of *Lavoisiera* but uncommon in *Microlicia*. In the past, a tendency to emphasize floral merosity and ovary locule number, to the exclusion of other characters, has led to the placement of anomalous species like this one in *Lavoisiera* instead of *Microlicia*.

The specific epithet, *longipedicellata*, calls attention to the persistent elongate pedicels of this species that measure 5–10 mm long. *Microlicia longipedicellata* is also distinctive in having quadrate upper cauline internodes, glutinous trinerved leaves that are glandular-punctate with a conspicuous network of prominulous venules on the abaxial surface, and triangular-subulate calyx lobes.

Representative specimens examined. BRAZIL. **Minas Gerais:** Sentinella, Diamantina, 8 Nov. 1937, *Mello Barreto 9575* (BHMH); Rio Grande, Diamantina, 8 Dec. 1937, *Mello Barreto 10074* (F).

Microlicia mucugensis (Wurdack) Almeda & A. B. Martins, comb. nov. Basionym: *Lavoisiera mucugensis* Wurdack, Phytologia 64: 294. 1988. TYPE: Brazil. Bahia: Mucugê, Corrego Moreira, 22 Jan. 1984, *G. Hatschbach 47502* (holotype, MBM; isotypes, C, CEPEC, HUEFS, US).

Distribution and phenology. Endemic to the Chapada Diamantina in Bahia, Brazil, from Andaraí and Mucugê south toward Jussiape in campo rupestre at 900–1200 m. Flowering specimens have been collected in January, July, and September; good fruiting material has been collected in May but specimens collected in January also have old fruits.

In addition to its 5-merous flower and 5-locular ovary, *Microlicia mucugensis* is distinguished by its viscose-punctate leaves that are sessile, ovate-oblong, and cordulate at the base, as well as its completely yellow anther thecae.

Wurdack's (1988) decision to place this species in *Lavoisiera* was evidently influenced by ovary locule number as the character of importance for generic placement in the Microlicieae. On the basis of other fixed characters such as the apically dehiscent capsules, superior ovary, deciduous columella, and subpeltate placental intrusions, none of which were considered diagnostic by Wurdack, assignment of this species to *Microlicia* is consistent with our circumscription of these genera.

In the protologue, Wurdack noted that *M. mucugensis* is most closely related to *Lavoisiera glutinosa* (in agreement with our transfer of the latter to *Microlicia* as *M. longipedicellata*). The latter species differs in its 6-merous flowers, ovate leaf blades that taper to the base, and well-developed pedicels (5–10 mm). Wurdack also emphasized the strong vegetative resemblance between *M. mucugensis* and *M. hatschbachii* Wurdack, noting that the latter species has a 3-locular ovary, basally acute leaves, and shorter deltoid calyx lobes.

Representative specimens examined. BRAZIL. **Bahia:** entre km 5–15 road, Mucugê rodovia para Andaraí, 15 Sep. 1985, *Hatschbach 48248* (C, US); Município de Mucugê, 3 km ao S de Mucugê, na estrada para Jussiape, 13°00′S, 41°24′W, 26 July 1979, *Mori et al. 12559* (US); Município de Mucugê, nova rodovia Mucugê/Andaraí entre os km 0 e 10, 19 May 1989, *Silva et al. 2774* (UB).

Microlicia noblickii (Wurdack) A. B. Martins & Almeda, comb. nov. Basionym: *Lavoisiera noblickii* Wurdack, Kew Bull. 50: 821. 1995. TYPE: Brazil. Bahia: Palmeiras, 19 Nov. 1983, *L. R. Noblick & A. Pinto 2769* (holotype, HUEFS; isotypes, CAS, CEPEC, US).

Distribution and phenology. Endemic to the Chapada Diamantina in Bahia, Brazil, where it has been collected on and near Morro do Pai Inácio in campo rupestre off the road between Lençois and Palmeiras at 1000–1200 m. Flowering specimens have been collected in October and November; fruiting material has been collected in June with some October collections in old fruit.

This species, like *M. mucugensis*, has 5-merous flowers and a 5-locular ovary. It is transferred to *Microlicia* for the same reasons enumerated in the discussion following that species. In his 1988 protologue of *Lavoisiera mucugensis*, Wurdack also

noted that these two species are closely related. We agree with his assessment of interspecific relationships although we disagree with his placement of both species in *Lavoisiera*. *Microlicia noblickii* differs from *M. mucugensis* in having larger leaf blades (12–16 × 10–11 mm vs. 7–10 × 6–8 mm), different calyx lobes (deltoid vs. lanceolate), and a longer connective prolongation on the larger anthers (7 mm vs. 3.8–4.2 mm).

Microlicia noblickii also differs from *M. mucugensis* in its polysporangiate anthers. *Microlicia mucugensis*, like the majority of angiosperms and presumably most Melastomataceae, has tetrasporangiate anthers. Baumgratz et al. (1996) first described polysporangiate (multilocular) anthers in the family for two species of *Chaetostoma* and 14 species of *Microlicia*. The anthers of species that are polysporangiate have both of their thecae divided into numerous small locules in a way that resembles the structure of a honeycomb. The biological significance of polysporangiate anthers is unclear at present. Vibrational pollination by bees is common in the Melastomataceae, and we have observed buzzing bees visiting flowers of *Microlicia* and *Chaetostoma* in the field. In polysporangiate anthers, Baumgratz et al. (1996) speculated that compartmentalization of the thecae would reduce the chance that all pollen is removed by the first insect visitor to a flower. Thus staggered pollen presentation would insure pollen availability to more than one visitor and ultimate deposition on more than one stigma.

Two of the species treated here, *M. noblickii* and *M. ordinata*, can now be added to the list of congeners with polysporangiate anthers. As Baumgratz et al. noted, the polysporangiate condition in the Microlicieae may ultimately prove to be of taxonomic utility, at the species level at least. Our survey of anther morphology in all species that we assign to *Lavoisiera* reveals that they are all tetrasporangiate. This corroborates and extends the findings of Baumgratz et al. who encountered only tetrasporangiate anthers in the 12 species of *Lavoisiera* examined for their study.

Representative specimens examined. BRAZIL. **Bahia:** Município Palmeiras, Morro do Pai Inácio–Platô Cruz, 5 Jan. 1997, *Conceição 218* (SPF); Município Palmeiras, Pai Inácio, 41°28′17″W, 12°27′31″S, 21 Nov. 1994, *Melo et al. 1197* (ALCB); E-facing slope just below TV transmission tower N of BR 242, ca. 5 km W of paved road to Lençois, 9 Nov. 1988, *Kral et al. 75606* (US); Município of Palmeiras, Pai Inácio, BR 242, W of Lençois at km 232, 12 June 1981, *Mori & Boom 14368* (US).

Microlicia ordinata (Wurdack) Almeda & A. B. Martins, comb. nov. Basionym: *Lavoisiera ordinata* Wurdack, Phytologia 29: 135. 1974. TYPE: Brazil. Goiás: Chapada dos Veadeiros, rocky slopes, 15 km W of Veadeiros, elev. 1000 m, 12 Feb. 1966, *H. S. Irwin et al. 12695* (holotype, US; isotypes, F, MO, NY, RB, S, W).

Distribution and phenology. Endemic to the Chapada dos Veadeiros in Goiás, Brazil, where it is locally common in wet campo (brejo), grassy seeping slopes, wet sandy or rocky soil, and rocky slopes (campo rupestre) at 1000–1600 m. Flowering collections have been made from February through April; fruiting material has been collected in July and October.

Microlicia ordinata, like *M. mucugensis* and *M. noblickii*, also has a 5-merous flower and a 5-locular ovary. Again, we suspect that the latter character figured prominently in Wurdack's (1974) decision to assign it to *Lavoisiera* instead of *Microlicia*. An examination of other diagnostic characters shows that it has a superior ovary, apical capsule dehiscence, a deciduous columella, and dorso-ventrally compressed placental intrusions. In Wurdack's (1959) initial attempt to place this species generically, he commented on its superficial resemblance to *Microlicia macrophylla* Naudin, which has a 3-locular ovary. In the protologue he compared *Lavoisiera ordinata* to *L. bicolor* Naudin. The latter species, which appears to be known only from the type, has a 6-merous flower and a 6-locular ovary (Cogniaux, 1883). Wurdack also commented on the resemblance of *L. ordinata* to *M. pilosissima* Cogniaux, a rare species that also has a 3-locular ovary.

Some of the salient characters of *M. ordinata* include its 4-winged upper internodes, ovate-orbicular, glandular pubescent leaves (0.5–1.4 cm long), short calyx lobes (1–2.8 cm), and a conspicuously 5-lobulate ovary apex. The anthers of *M. ordinata* are polysporangiate like those described above for *M. noblickii*.

The chromosome number of *M. ordinata* was reported as $n = 12$ under the genus *Lavoisiera* (Almeda, 1997). A gametic number of 12 is known for several species of *Chaetostoma*, *Lavoisiera*, *Microlicia*, and *Trembleya* and appears to be the base number in the Microlicieae (Almeda, Martins & Romero, unpublished).

Representative specimens examined. BRAZIL. **Goiás:** 20 km by road N of Alto Paraíso, 5 Mar. 1973, *Anderson et al. 6381* (C, F, MO, NY, RB, US); 15 km S of Veadeiros, road to São João de Aliança, 19 Mar. 1969, *Irwin et al. 24639* (CAS); Chapada dos Veadeiros, rodovia GO-118, 4 km N de Alto Paraíso, 10 Feb. 1994, *Hatschbach & Silva*

60297 (HUEFS); Chapada dos Veadeiros, 10 Km N of Alto Paraíso, 24 Jan. 1980, *King & Almeda 8275* (CAS, M, MO, UB, US).

Microlicia vernicosa (Barreto ex Pedersoli) A. B. Martins & Almeda, comb. nov. Basionym: *Lavoisiera vernicosa* Barreto ex Pedersoli, Oréades 7 (12/13): 25–28. 1979/1980. TYPE: Brazil. Minas Gerais: Serra do Cipó, 13 Aug. 1933, *H. L. M. Barreto 325* (holotype, BHMH).

Distribution and phenology. Known only from the type, which was collected in flower in August.

The protologue notes that fruits of this species were not seen. We suspect that its placement in *Lavoisiera* was probably based on its 6-merous flowers. Although the mode of capsule dehiscence cannot be determined on the basis of material at hand, it is clear that this species has a 3-locular ovary, which is never found in *Lavoisiera*. Because the ovary of *M. vernicosa* is superior, the ovary placentae are dorso-ventrally compressed, and the flowers are not subtended by bracts, we infer that this species will exhibit all the diagnostic characters that we attribute to *Microlicia* when fruiting material comes to light.

In the protologue, *M. vernicosa* is compared with *L. glutinosa* (here transferred to *Microlicia* as *M. longipedicellata*). Both of these species have glutinous leaves and flowers that are solitary but aggregated in uppermost leafy branches. In *M. longipedicellata* the flowers are 8-merous, the ovary is 5-locular, the leaves are entire (vs. serrulate in *M. vernicosa*), and the pedicels are 5–10 mm (vs. 1–2 mm) long.

Trembleya elegans (Cogniaux) Almeda & A. B. Martins, comb. nov. Basionym: *Lavoisiera elegans* Cogniaux, in Mart. Fl. Bras. 14(3): 160–161. 1883. TYPE: Brazil. Goiás: *A. F. Glaziou 3758* (holotype, BR; isotype, C).

Distribution and phenology. Probably widespread from the Carrancas region of southern Minas Gerais, Brazil, northwest to Serra da Canastra and north to an unspecified locality in Goiás state in campo rupestre and seasonally wet campo at 1000 m. Flowering material has been collected from February through May and in October and November; fruiting material has been gathered in September and October.

In the protologue, the type is cited as being from Rio de Janeiro but the label on the holotype gives the locality as Goiás. No recently collected material has been seen from that state but six collections were made in Minas Gerais from 1996 through 1998. Cogniaux (1883) described this species as having solitary 4- or rarely 5-merous flowers, and a 4-locular ovary that is ½ inferior. The type does have a 4-locular ovary but it is superior. All recent collections of *T. elegans* have a superior 5-locular ovary, an apically dehiscent capsule, and 5-merous flowers borne in dichasia with bracts subtending the inflorescence nodes and bracteoles subtending floral pedicels. The ovary also has subpeltate placental intrusions that are typical of *Trembleya*.

Until 1996, *T. elegans* was known only from the type and one other collection. This probably accounts for the fact that its discordant position in *Lavoisiera* was not discovered for over 100 years. Its apparent rarity is also suggested by the fact that it is not conspecific with any of the described species of *Trembleya* recently treated by Martins (1997).

Representative specimens examined. BRAZIL. **Goiás:** in 1894–95 without a specific locality, *Glaziou 25297* (BR). **Minas Gerais:** Município de Carrancas, caminho para Gruta da Ponte, 22 May 1997, *Matsumoto et al. 293* (CAS); Município de Carrancas, Poço da Ponte, 13 Sep. 1997, *Matsumoto 422* (UEC); Município de Carrancas, Poço da Ponte, 44°39′W, 21°28′S, 10 Oct. 1997, *Matsumoto et al. 487* (CAS); Município de Carrancas, Poço da Ponte, 10 Nov. 1997, *Matsumoto et al. 503* (UEC); Município de Carrancas, Toca da Ponte, 6 Feb. 1998, *Matsumoto et al. 655* (UEC); Parque Nacional da Serra da Canastra, São Roque de Minas, 24 Mar. 1996, *Nakajima & Romero 1729* (CAS).

Acknowledgments. Fieldwork for this study was funded by the National Geographic Society (NGS Grant 6173-98 to Almeda). We are grateful to the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP) for a postdoctoral grant (No. 99/0694-3) to Martins that made this collaborative project possible during her extended stay at the California Academy of Sciences. Martins also thanks the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq Grant No. 301346/86-0) for supporting her taxonomic studies of Melastomataceae. We also thank the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA) for permission to collect in protected areas of Brazil, the Universidade Estadual de Campinas, and the California Academy of Sciences for logistical and facilities support, and the following individuals who helped with many aspects of two recent field expeditions to Brazil: Orbélia Robinson, Don Robinson, Rosana Romero, Paulo J. F. Guimarães, Renato Goldenberg, Renato Belinello, and Jimi N. Nakajima. We also thank the curators and staffs of the following herbaria for loans, gifts, or special assistance during study visits: ALCB, B, BHCB, BHMH, BM, BR, C, CAS, CEPEC, DS, ESA, F, HUEFS, HUFU, K, M,

MBM, MICH, MO, NY, R, RB, S, SP, SPF, UB, UEC, US, W.

Literature Cited

Almeda, F. 1997. Chromosome numbers and their evolutionary significance in some neotropical and paleotropical Melastomataceae. BioLlania Ed. Esp. N° 6: 167–190.

Baillon, H. E. 1877. Mélastomacées. Hist. Pl. 7: 1–65. L. Hachette et Cie, Paris, London & Leipzig.

Baumgratz, J. F. A., M. L. D. R. Souza, E. M. Woodgyer & E. M. Nic Lughadha. 1996. Polysporangiate anthers: Described for the first time in Melastomataceae. Kew Bull. 51: 133–144.

Cogniaux, A. 1883. Melastomaceae (Microlicieae). *In*: C. F. P. von Martius, Flora Brasiliensis 14(3): 1–204.

———. 1891. Mélastomacées. *In*: A. & C. de Candolle (editors), Monographiae phanerogamarum 7: 1–1256. G. Masson, Paris.

Giulietti, A. M. & J. R. Pirani. 1997. Espinhaço Range Region, Eastern Brazil. Pp. 397–404 *in* S. D. Davis, V. H. Heywood, O. Herrera-MacBryde, J. Villa-Lobos & A. C. Hamilton (editors), Centres of Plant Diversity: A Guide and Strategy for Their Conservation (Vol. 3. The Americas). The World Wide Fund for Nature (WWF) and IUCN-The World Conservation Union. IUCN Publications Unit, Cambridge, U.K.

———, N. L. Menezes, J. R. Pirani, M. Meguro & G. L. Wanderley. 1987. Flora da Serra do Cipó, Minas Gerais: Caracterização e lista das espécies. Bol. Bot. Univ. São Paulo 9: 1–151.

Hooker, J. D. 1867. Melastomaceae. *In*: G. Bentham & J. D. Hooker, Genera Plantarum 1: 725–773.

Markgraf, 1927. Melastomataceae (*Microlicia*). *In*: R. Pilger (editor), Plantae Luetzelburgianae Brasilienses VII. Notizbl. Bot. Gart. Berlin-Dahlem 10: 45–47.

Martins, E. 1997. Revisão Taxonômica do Gênero *Trembleya* DC. (Melastomataceae). D.Sc. Thesis, Univ. Estadual de Campinas, São Paulo, Brazil.

Naudin, C. V. 1844. Additions à la flore du Brésil Méridional. Ann. Sci. Nat. Bot., Sér. 3, 2: 148–156.

———. 1845. Additions à la flore du Brésil Méridional. Ann. Sci. Nat. Bot., Sér. 3, 3: 169–192.

Renner, S. S. 1993. Phylogeny and classification of the Melastomataceae and Memecylaceae. Nordic J. Bot. 13: 519–540.

Stannard, B. L. (editor). 1995. Flora of the Pico das Almas. Chapada Diamantina–Bahia, Brazil. Royal Botanic Gardens, Kew.

Woodgyer, E. 1995. Melastomataceae (*Lavoisiera*). Pp. 441–445 *in* B. L. Stannard (editor), Flora of the Pico das Almas. Chapada Diamantina–Bahia, Brazil. Royal Botanic Gardens, Kew.

Wurdack, J. J. 1959. The Machris Brazilian Expedition: Phanerogamae, Melastomataceae and Polygalaceae. Los Angeles County Mus. Contr. Sci. 28: 3–11.

———. 1974. Certamen Melastomataceis XXIII. Phytologia 29: 135–151.

———. 1988. Certamen Melastomataceis XXXVIII. Phytologia 64: 293–301.